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An application of XML to the creation of an interactive resource for authentic language learning tasks

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Abstract

There has of late been a call among language practitioners for the sophisticated new markup language XML to be used in Web-based tools for language learning (Mills, 1999; Riley, 2001; Godwin-Jones, 2000). This paper describes just such an application: the development of an interactive electronic resource book of learning tasks for English Language Teaching (ELT). The electronic resource book incorporates an authenticity-centred approach to language learning materials design, viz language learning based on authentic texts complemented by authentic tasks. The paper covers a general introduction to XML, describes the pedagogical model (i.e. the authenticity-centred approach) that it was used to realise, and describes the development of the XML-based system operating the electronic resource book. Among the conclusions of this paper are that this trial application reveals XML to be ideally suited to the realisation of such pedagogical models and that its greatly enhanced information management and linking potential promises an exciting future in the field of language teaching by providing the possibility for pedagogy-led technology rather than technology-led pedagogy.

1 Introduction

This paper describes an application of a programming approach as yet under-exploited in the field of language learning. XML, eXtensible Mark-up Language, is an 'enhanced relative' of HTML, a 'metalanguage' enabling the design of customized markup languages for limitless different types of documents. This flexibility suggests a wide-ranging application in linguistics and language learning but this potential has yet to be realised (see, for example, Mills, 1999; Godwin-Jones, 2000: 10). This may simply be due to the fact that not all language practitioners are competent technologists *au fait* with state-of-the-art developments such as this. It may also reflect a not unhealthy scepticism about technology too often being 'a solution in search of a problem' instead of technology being pedagogy-driven. This paper hopefully illustrates, however, both

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that state-of-the-art technology can be utilised by non-programmers and that this technical system was an ideal solution to a pedagogical conundrum and not vice-versa.

The paper will, first of all, give brief backgrounds to the two areas that were combined for the work reported in this paper, the markup language XML and the genre of the language learning materials resource book. The authors then use a 'top-down' approach to describe the application of XML in creating the prototype of an interactive, electronic teachers' resource book for authentic materials (E-RAM). The basic principles and other parameters of the pedagogical model, the authenticity-centred approach, imposed on the E-RAM are given. The interface and functioning of the electronic instrument used to realise the model are then described. Next, the XML-based system designed to create the interface is detailed. The result is an interactive resource book which offers teachers step-by-step descriptions of authentic classroom tasks that are 'tailored' to the authentic texts of their choice. Drawing on the reports from a trial with practising teachers, conclusions are drawn as to the viability of an electronic resource book of this sort. The suitability of the medium to the pedagogical model and the efficacy of XML in realising it are assessed, and the potential of XML in language teaching in general is discussed.

2 What is XML?

XML (eXtensible Markup Language), is described by the W3C (1998) as "the universal format for structured documents and data on the Web", but XML has many more applications than simply web-enabling data. As a markup language, it allows the user to describe the *content*, or *meaning* of text to a computer, unlike markup languages such as HTML and SGML which simply describe its style.

XML is a very flexible way of storing any type of textual material which the user might care to manipulate. It makes a total separation between the *content* of a document (i.e. the information contained in it) and its *style* (the manner in which it is presented to the user). XML allows the programmer to define a schema for describing information where the style and content are to be kept separate. For example, the information: ***Examples of Tree Fruits are: Apples, Oranges, Pears*** could be defined in XML as follows:

```
<tree>
        <fruit>Apples</fruit>
        <fruit>Oranges</fruit>
        <fruit>Pears</fruit>
</tree>
```

This specifies the content but not the style; XML allows the programmer to define his/her own schema for describing the information. The process of adding a structure to the information to tell the computer what each piece of information means, 'marking-up', is done by adding labels or 'tags' to the information which is to be stored. Unlike other markup languages, the tags are defined by the user, allowing him/her to define tags which exactly fit the particular application. There are three key aspects of this approach. It is rich in information content, it is efficient in terms of the bandwidth required to move information from one place to another as it relies heavily on client-side processing

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and, finally, it is totally flexible as the user can define a tagging schema to suit the particular application in mind. These features made XML ideal for the application described in this paper; the pedagogical model realised through XML is described in the section *Task authenticity: an authenticity-centred approach to task design*.

3 The resource book genre

The language teaching resource book is a genre that came out of the Communicative movement in language teaching, an approach which put the emphasis on a more authentic use of language for *meaning* and *communication*. Resource books usually focus on one particular teaching tool, technique, language skill, resource or genre – video, role-play, writing, newspapers, song and so on (e.g. Tomalin & Stempleski, 1990; Porter Ladousse, 2002; Hedge, 2002; Grundy, 1993; Murphey, 1992). The usual resource book format consists of a collection of tasks described step-by-step for use with learners at varying proficiency levels. Contributing a valuable and imaginative element to classroom teaching, the resource book as a genre has two major shortcomings, however. Its print-based, static medium precludes speedy updating, so the resource book can date quickly. Secondly, resource books limit themselves to a single genre. Transferred to the electronic medium, these two drawbacks are dissipated: material can easily be updated and expanded, and the quantity and variety of material made available to the teacher is not limited by factors of space and size.

Overcoming these limitations was the practical challenge taken on by the authors. An electronic resource book was envisaged – in effect an electronic task database – which would match classroom tasks to authentic texts from a range of genres/discourse types. The system would thus have to contain instructions for large numbers of tasks and be flexible enough to allow the teacher to 'describe' to the model the authentic text s/he wished to use, so that a 'matching' task could be generated. This leads on to the other challenge faced by the authors: how to interpret a specific pedagogical model for task design, the 'authenticity-centred approach' (see below), in empirical terms, i.e. in terms of sets of parameters and ultimately in terms of an interface that would contain them. A description of the technical system devised follows the exposition of the pedagogical approach below.

4 Task authenticity: an authenticity-centred approach to task design

The use of authentic texts for language learning is a practice with a long history in language pedagogy, one that was reinvigorated by the Communicative approach that predominated in ELT from about the 1970s onwards. An obvious corollary of the basic tenet of the approach, the precedence of *meaning* over *language form*, was that learning texts need no longer contain specific grammatical structures and so *authentic material* could be used for language study. Authentic texts, what is more, contained samples of the genuine *language in use* so fundamental to the Communicative approach. Since the 1970s, the Communicative movement has seen coursebooks displaying ever more authentic realia, in the form of colourful photographs, advertisements, leaflets and so on, as well as extracts from longer texts such as newspapers, magazines and books. Too often, however, this cosmetic authenticity is as far as it goes (see, for example, Clarke,

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1989: 79). Authentic texts are treated as artificially as inauthentic ones, with irrelevant discrete point comprehension questions and vocabulary checks which neglect the original communicative purpose of the text (e.g. Swaffer, 1985: 17) and quash any genuine emotive response to it (see, for example, Long, 1991: 45 on the primacy of response). The idea that the *task* the learner is required to do with an authentic text should complement its authenticity was conceived in part in reaction to such inappropriate treatment and in part as an endeavour to establish authenticity as a pedagogical paradigm.

As yet, as Gueriento and Morley note (2001: 347) "there have been few systematic attempts to address the question of task authenticity." However, the basic concept has been mooted time and again in the so-called 'authenticity debate' that accompanied the resurgence of the use of authentic materials in the late 1970s. Task authenticity has been conceived as designing tasks based on a variety of principles, from task as a rehearsal for real life undertakings (e.g. Tomlinson, 1998: viii) to adherence to the original purpose of the authentic text (e.g. Kramsch, 1993: 179). The most crucial of these principles, and those to have been incorporated into the model described in the present paper, are that learning tasks should be designed to do the following: reflect the authentic communicative purpose of the text and be appropriate to it (Clarke, 1989: 73); instigate communication for a genuine purpose (e.g. Willis, 1996); give a 'real world' purpose to interaction with the text (Underwood, 1994: 31); approximate "the sorts of behaviours required […] in the world beyond the classroom" (Nunan, 1989: 40), and involve elements of personal engagement and response (e.g. Van Lier, 1996: 128; Widdowson, 1978: 80).

These principles were honed into the set of guidelines for task authenticity presented below. They act as the first set of parameters defining the pedagogical model in that they underlie the learning tasks conceived for inclusion in the electronic resource book. The principles of task authenticity are shown below.

In order for tasks to be authentic, they should be designed to:

1. Respond to the original communicative purpose of the text.
2. 'Rehearse' real-life tasks.
3. Orient towards a goal/outcome.
4. Create genuine suspense as to their outcome.
5. Require natural (native speaker-like) interaction between learner/s and the text.
6. Involve genuine communication between learners.
7. Activate learners' existing knowledge of the target language and culture.

Adhering to these principles of response to the text's original *communicative purpose* (principle number one above) requires a degree of analysis of the authentic text itself. Communicative purpose – defined most simply as "what we do through language" (Wilkins, 1976: 41) refers to what the speaker/writer intends to *do* by their utterance/text. The utterance/text may be intended to *persuade* the listener/reader (the communicative intent of an advertisement, for example), to *provoke* (e.g. a newspaper editorial), to *engage the emotions* (e.g. a poem or song) and so on. Texts can have more than one communicative purpose (Swales, 1990: 47): a news broadcast, for instance, may have an overtly *informative* communicative purpose (i.e. to transmit information), but there may be elements of others such as *persuasion* (to influence public opinion, to

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retain viewer/listener loyalty and so on). While communicative purpose is a familiar concept in the fields of genre analysis (e.g. Kress & Threadgold, 1988; Bhatia, 1993; Swales, 1990), discourse analysis (e.g. Brown & Yule, 1983; Wilkins, 1976) and linguistic analysis (e.g. Biber, 1988), no generally accepted or finite set of communicative purposes appears to exist. Since this was a required set of parameters for the task authenticity model, the above-mentioned fields of literature were trawled for relevant breakdowns or analyses of communicative purpose.

Brown and Yule's distinction between the two basic functions of oral language, *transactional* (conveying "factual propositional information" with a view to obtaining goods, services etc.) and *interactional* (maintaining social relationships) (Brown & Yule, 1983: 1–4) was seen, first of all, to constitute a useful sort of 'baseline'. From the set proposed by Wilkins in *Notional Syllabuses* (1976:42) came the first three of the communicative classifications used in the model. These were *suasive* (from Wilkins' *suasion*), *engaging* (engaging the emotions, imagination etc.) adapted from Wilkins' *personal emotions*, and, thirdly, *provocative* (causing an external manifestation of inner emotion, in the form of an oral response, physical action etc.) based on Wilkins' *emotive relations*. The source for three more of the set, *informative, interactive* and *engaging*, was Biber's work on linguistic analysis (1988), in which he analysed the linguistic features of written and spoken texts which co-occur frequently, and used these to identify underlying textual dimensions. This gave a provisional set of five communicative purposes, *informative, suasive, interactive, provocative* and *engaging* which was verified and consolidated using a 'question-response' framework designed for this function (see the Appendix). This procedure led to the addition of another two communicative purposes particularly relevant to the types of authentic texts often used for language learning, *soliciting*[1] and *instructional*.[2] Verified against the Brown and Yule 'transactional' versus 'interactional' baseline (see above), this finalised set of seven communicative purposes slotted into the two categories thus: *instructional, informative, suasive* and *soliciting* under 'transactional', and *interactive, provocative* and *engaging* under 'interactional'.

This set is not intended to be exhaustive but to offer sufficiently broad categories to enable the teacher-user, through a process of inference, to categorise any authentic text s/he has selected for classroom use.

Referring back to the principles of task authenticity, if a task is to respond to the communicative purpose of a text (principle number one) it may be inferred that there are various *types* of tasks, suited to different communicative purposes. If the communicative purpose of a text is identified as *suasive*, for example, as it might be with an advertisement, a suitable, realistic task (see principles two and five) might be to *react* to this persuasion in some way, e.g. to buy the product advertised, to find out more about it or perhaps to *analyse* how (linguistically/visually etc.) this persuasion is achieved. Literature, on the other hand, may be considered as intending to *engage* the intellect/emotions. Task types matching the communicative purpose *engaging*, include *responding* to the text (orally or in writing) *inferring* concepts, *analysing* language etc. Using this method of looking at each communicative purpose in turn and asking what

1 The communicaticative purpose of discourse types such as classified advertisments.

2 To cover such things as technical instructions in computer-based applications.

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would be authentic ways of responding to a text having this communicative intent, the set of task typologies shown in Table was created.

The pedagogical model for authentic task design therefore imposes the three sets of parameters presented above, the *principles of task authenticity* (see the principles of task authenticity list) the *communicative purpose* (Table 1) of the authentic text on which the learning task is to be based and the *task typology* (Table 2). Of these, only the last two

Table 1 *Communicative purpose*

Nomenclature	Communicative purpose of text is to
Informative	transmit information
Suasive	persuade (re. purchase, opinion, action etc.)
Interactive	interact or transact (business or personal)
Instructional	give instruction for implementing a process
Provocative	provoke reaction: emotive (including humour)/intellectual/ kinaethetic
Engaging	engage intellect/imagination/emotions
Soliciting	elicit information or action

Table 2 *Description of Task Typologies (see also footnote 4).*

Task type	Description
Reaction	Reaction (including kinaesthetic) to written, audio or audio-visual input e.g. acting on written, audio or visual instructions in order to create something, accomplish a task or participate in activity.
Response*	Response (manifested orally, in writing or graphically) to audio, written, visual, or audio-visual input.
Inferencing	Inferring/extrapolating/interpreting information or concepts (including cultural) from audio, written, visual, or audio-visual input.
Transference	Transference, translation or paraphrase from one medium, genre or culture to another (includes awareness of significance of these transferences).
Extraction	Extracting factual information (including factual cultural indicators) from audio, written, visual, or audio-visual input.
Analysis	Awareness-raising of linguistic forms and functions and of emotive, figurative and subjective use of language.
Extension	Extension/prediction of development/outcome of event, situation presented via audio, written, visual, or audio-visual input.

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have a selecting function in the electronic resource book; the *principles of task authenticity* underpinned the design of the learning tasks contained within it.

5 The electronic resource book for authentic materials (E-RAM): the interface

The technical brief was to realise the conceptual structure of this pedagogical model in electronic form, designing a tool that could generate an appropriate task to match a given authentic text, while being user-friendly enough for teachers with even minimal levels of computer literacy. An instrument was conceived which had a branching structure that used a hyper-link interface to generate a series of four menus progressively narrowing the description of the input text.

These four menus consisted of (a) the two of the sets of parameters already given above, *communicative purpose* and *task typolology* and (b) two sets of parameters defining *genre* and *discourse* type contained within genre.

The first menu asks the user-teacher simply to define the *genre* (e.g. *broadcast media, advertisements, film*) of their chosen text:

- Broadcast Media
- Newspapers
- Advertisements
- Literature
- Song/Music
- Film
- Technology-based material

Once this choice has been made (by a mouse-click), the second menu asks the user to define the *discourse type* within the chosen genre. Each genre contains a range of discourse types peculiar to itself: the genre 'Newspapers', for example, contains thirteen discourse types (e.g. *headlines, news reports, editorials*), 'Song/Music' contains five (*traditional songs, pop videos* etc.) and so on. In Table 3, it can be seen that the 'Broadcast media' genre includes such discourse types as *news bulletin, weather forecast* etc.

Once a choice of discourse type has been made (in Table 4, *news bulletin*) a third

Table 3 *The second menu for broadcast media: discourse types*

Broadcast Media	News bulletin
	News item
	TC (Target Culture) news item
	News interview
	Documentary
	Fiction – dramatic
	Fiction – dialogue
	Star interview
	Weather forecast
	Radio trailers
	Programme schedule

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Table 4 *The third menu*

Broadcast Media	News bulletin	Informative
	News item	Interactive
	TC news item	
	News interview	
	Documentary	
	Fiction – dramatic	
	Fiction – dialogue	
	Star interview	
	Weather forecast	
	Radio trailers	
	Programme schedule	

menu is prompted, *communicative purpose*. The third menu is less extensive than the first two, as this parameter is dictated to a large extent by the discourse type (a news bulletin, for example, can be *informative* or *provocative* according to the communicative purposes defined above, but could not normally be considered *soliciting*).

Once the appropriate communicative purpose has been selected, the fourth menu appears (Table 5). Like the previous one, it is limited; it suggests only *task types* which suit the text described thus far.

Once the selection of task type has been made, an appropriate task or set of tasks are generated. As is illustrated by the *inferencing* task generated in Table 6, for each task, the following information is given: the *aim* of the task (e.g. "to raise awareness of subjective use of language in the journalistic genre"), the approximate *proficiency level* of the learners for whom it is suitable,[3] the teacher *preparation* required, and step-by-step instructions for the teacher for classroom implementation of the task. Where appropriate and available, suggestions for authentic texts for the ELT context are given, such as

Table 5

Broadcast Media	News bulletin	Informative	Transference
		News item	Provocative
		TC news item		Extraction
		News interview		Inferencing
		Documentary	
		Fiction – dramatic	
		Fiction – dialogue	
		Star interview	
		Weather forecast	
		Radio trailers	
		Programme schedule	

3 Levels based on The English Speaking Union Framework which ranges from level 1 to level 9. From Carroll & West (1989). These levels to be redefined according to the common European Framework for Reference Languages (Council of Europe, 2001) in subsequent versions of the model.

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Table 6

Broadcast Media	News bulletin News item TC news item News interview Documentary Fiction – dramatic Fiction – dialogue Star interview Weather forecast Radio trailers Programme schedule	Informative Provocative	Transference Extraction Inferencing

Aim: To relate media information to self. *Level 5 up*. *Prep*: Record/video a radio/TV news bulletin. 1. Play news bulletin to the class. 2. Ask each learner to: (a) Identify at least one news item which relates to personal concerns/interests, or to those of own country. (b) Make notes on identified news item. (c) Add coda, explaining how/why this item relates to self or own country. 3. In groups, learners reveal and discuss news item selected and why/how it has personal /national significance.

titles of novels, poems, films and so on that might be used in the described task.

A description of the technical means by which this interface was achieved is given in Section 6. The prototype contained a total of 149 tasks, divided between the seven genres as shown in Table 7.

6 Interpreting E-RAM in XML

The electronic task resource book as described above functions via a four-stage process in which the teacher using it progressively refines the description of the authentic text for which s/he wishes to find an appropriate task. This process was conceptualised as a question and response format, the teacher-user being presented at each stage with choices which s/he selects or rejects. This yielded a branching tree structure which is analogous to hypertext. The technical task confronted was that of identifying a schema for codifying this model that would allow a non-programmer to provide the knowledge base to the system with a minimum of programming expertise. Another requirement was the capacity for flexible delivery of the information via a Web browser using either the Web or a CD-ROM.

The feasibility of implementing the prototype using Visual Basic™ and JAVA was examined, but both tools proved unsatisfactory as they were too inflexible and required a high level of programming expertise. The final solution was arrived at by using a combination of XML and JavaScript. The system is unique in its ability to separate style from content and logical structure, thereby yielding a great deal of flexibility in the presentation of the finished product. This ease-of-use and flexibility of presentation was achieved by designing an application-specific XML schema for describing the logic of the model to the web-server, in such a way as to require the use of only a small set of intuitive keywords in order to codify the model data. In the prototype system, the

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Table 7 *Numbers of tasks by genre*

Broadcast media	24
Newspapers	31
Advertisements	13
Literature (the novel, the short story, poetry)	33
Song/music	7
Films	14
Technology-based material (the Internet, e-mail, corpora)	29

software automatically generates an appropriate navigational framework as it loads into the web browser, obviating the need for the programmer to consider this aspect of the design process. A unique feature of the system is that the web-server presents the browser with all of the data required to build the entire model, but it leaves the web-browser the task of drawing inferences from the data. It is extremely efficient in terms of network usage as it ships the minimum amount of information required to construct the model, leaving the web-server to handle requests from other users for data.

As was noted above, XML makes a separation between the *conten*t of a document and its *style*, allowing the programmer to define his/her own schema for describing the information to exactly fit the particular application. The authenticity-centred model had several characteristics which made it very suitable for implementation using an XML tagging schema. The first is that, as was described above, it had an inherent hierarchical structure that used a number of different levels. The information content was, secondly, language-based, i.e. consisting of letters rather than numbers. Letters are particularly suitable for this type of implementation as they constitute well-defined types of information. In the case being described here, the parameters integral to the pedagogical model could be used as the basis for the XML tags. These were consequently defined as shown in Table 8.

All that was required in order to input information into the system was to learn these five XML tags, all of which were self-explanatory. The data was transferred to the system by simply cutting and pasting text from MSWord. A sample of how the program appeared once the information had been inputted is shown in Figure 1.

The navigational framework is built using the language JavaScript operating on the Document Object Model which is derived from the tagged XML data. However, as this happens automatically, the person inputting information to the system was not involved

Table 8 *XML tags*

XML tag designation	Parameter
<model>	Starting tag: declares the start of the model
<text type>	Genre
<medium type>	Discourse type
<purpose type>	Communicative purpose
<typology type>	Task typology

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```
<text type = "Broadcast Media">
  <medium type = "TC News item">
        <purpose type="Provocative">
              <typology type="Analysis">Aim: To raise awareness of relativity of cultural
              priorities/interests. Level 5 up. Select one item from recorded radio/TV news
              relating to event of national (TC) relevance, as controversial as possible (e.g.
              crime, drug/alcohol abuse, taxes, ages of consent, social legislation on these
              etc.).-Learners listen to/view item as many times as they require to proceed
              (see below). -Working in mono-cultural groups if possible, or else individually,
              ask learners to prepare to re-tell the story as radio/TV news item from their
              own culture. Remind them to consider differences in cultural priorities and
              values i.e. how important would this item be in their culture? How would it be
              interpreted? What would be the influence of their own cultural attitudes to the
              TC? etc.- Each group/individual reads their prepared news item. Discuss
              differences; prioritisation of facts reported (any facts omitted or added?)
              shock-value of/attitudes to the topic etc.
              </typology>
        </purpose>
  </medium>
</text>
```

Fig.1. Sample of program.

with the mechanics of how it was implemented. As well as handling the navigation, the JavaScript program uses an additional XSL style sheet file to specify how text should be displayed, i.e. where it should appear on the page, in what font and in what size. This was another aspect of the system's programming with which the person inputting data was uninvolved, except insofar as approving the appearance of the finished product.

7 E-RAM in use: piloting and evaluation

The electronic resource book was piloted with a group of ten practising language teachers who were seconded on a voluntary basis from the authors' institution, a third level institution in the Irish Republic. Their students consisted of young adult EFL learners, the majority from Europe, but also from Japan, China, Korea, Turkey and Brazil. The teachers were asked to generate tasks from the electronic coursebook E-RAM and use them in their classes over a period of one month, reporting reactions on two separate questionnaires. The first questionnaire elicited assessment of the electronic resource book itself. Teachers were asked for feedback on its practical and conceptual features, i.e. the user-friendliness of the interface and clarity of the terminology used. For the latter, comment was invited on the pedagogical model embodied in the system and the conceptual structure designed to interpret this, i.e. the appropriacy and comprehensibility of the sets of parameters proposed. The second questionnaire asked the teachers to rate the success of classroom use of the tasks generated by the electronic resource book, in terms of their functioning in the classroom and of perceived learner responses and learning outcomes. In the questionnaires, both qualitative and quantitative data was elicited, through the use of open-ended questions backed up by numerical scales asking for teachers' satisfaction ratings on a scale from one to five.

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Analysis of the results of this trial revealed that the computer-based, hypertext interface used for the resource was highly acceptable to the pilot group. The electronic resource book was seen by some teachers as an improvement on their usual print-based resources in terms of speed, scope and variety. The use of the by now familiar 'browseable' hypertext format was popular, teachers felt that the system was an original and useable means of accessing ideas for teaching tasks. The most controversial aspect of the model was, as had been expected, the conceptual structure, with teachers querying definitions and offering suggestions for changes of terminology.[4] As regards the tasks tested with learners, while these represented just under 10% of the instruments' total content of 149 tasks, a high degree of satisfaction was expressed, both with how well the tasks worked in class (rated 4.2 – between 'very satisfactory' and 'excellent') and with learners' responses (assessment of learner involvement in the activities ranged from 'very interested' to 'fully involved' and 'immersed').

8 XML for an interactive authentic materials resource: discussion

In summary, this pilot study obtained generally positive reactions from its destined end-users, practising language teachers, to the authentic tasks resource and to the pedagogical model underpinning it. Although still very much a preliminary conclusion due to the size of the pilot group, these results suggest that the realisation of a precise pedagogical model as a practical, electronic teaching resource may indeed be a felicitous formula.

From the developers' point of view, the principal advantage of having the model in an easily programmable computer-based format such as XML is its adaptability. Both the content and conceptual structure of the system can easily be altered and substituted by a non-programmer within the basic framework of the software. This gives it great potential for other permutations, either in modified versions of its current form, or for more specialised markets. Specific systems could be developed for fields of LSP such as Business and Technology, for which tasks for relevant discourse types (such as business communication, giving and following instructions) might be designed. The tool might also be adapted for the teacher training market or for non-native speaker teachers; the task instructions might be expanded and the terminology of the conceptual structure rationalised. The pedagogical concepts implicit in the authenticity-centred approach, particularly its use of task-based learning models, might not be suitable to some cultures, but even these could be replaced by more teacher-centred activities or whatever was required. Altering the cultural content is equally simple: references to authentic texts (literature, films, TV programmes etc.) can regularly be updated or replaced by those of another English-speaking culture or indeed, (since the tasks are not language-specific), other language cultures. Tasks may be adapted, added or deleted as they are tried out in the classroom. Used on a shared platform allowing access to numbers of practitioners, the tasks resource could foreseeably act as an institution-wide or even national resource for teachers. This might incidentally help undercut the culture of secrecy regarding 'personal' teaching materials that is sadly so prevalent in the ELT profession.

4 It was suggested, for instance, that the distinction between the task typologies reaction was not clearly inferable in terms of the tasks proposed and that the two terms could be merged.

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9 XML and language pedagogy: the way forward

In conclusion, the attractiveness of XML for this type of application lies, first of all, in the opportunity of custom-defining markup tags to fit a particular schema which means that XML can be used to realise an infinite variety of models. Secondly, the ease of inputting the content once the system has been set up, puts this state-of-the-art technology within the grasp of users of all levels of computer literacy.

The success of the XML-based prototype for authentic language tasks reported in this paper suggests that there is an exciting future for XML in the field of language teaching. XML proves to be ideally suited to the realisation and implementation of pedagogical models. In the broader context of ICT and CALL, the success of this system demonstrates that ICT applications can today be led by the pedagogy rather than vice-versa. It is hoped that the application described in this paper will presage a trend in exploitation of this technology for teaching and learning the complex and organic system that is language.

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Appendix: derivation of communicative purpose

Is the text intended to provoke:

The performance of a physical action?	Does this entail	Communicative purpose
	→ following instructions?	→ Instructional
	→ Purchase/use of goods/services?	→ Suasive
A productive reaction?		
	→ Producing oral/written information?	→ Soliciting
	→ oral/written reaction which → advances interaction?	→ Interactive
An emotive/ intellectual response?		
	→ anticipated oral/written follow-up?	→ Provocative
	→ no anticipated follow-up?	→ Engaging
Passive reception of text?		
	→ no anticipated follow-up?	→ Informative

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